



Shenandoah

INSTALLATION & MAINTENANCE

GENERAL INSTALLATION GUIDELINES

1. Read all instructions prior to installation. Follow all guidelines for a successful installation.
2. Inspect materials upon delivery to verify material is undamaged and the correct product, color, and quantity are present prior to moving material to your installation site. Claims for incorrect material, quantity, or visibly damaged goods will not be accepted if the material has been moved from the original delivery location. Store materials in dry, indoor areas away from direct sunlight. Report discrepancies to your point of purchase immediately. .
3. It is the responsibility of the installer to ensure that products are installed in accordance with all applicable guidelines. Refer to the Shenandoah warranty for any questions about the suitability of a product for any application.
4. It is important to work out of several cartons to mix the patterns when installing Shenandoah to properly mix the décor and ensure a beautiful application.
5. All pieces should be thoroughly inspected for color, texture, sheen, and design prior to installation. Installation of material constitutes acceptance of physical and/or aesthetic imperfections. If you have any concerns about the product, please immediately contact us at info@easternflooringproducts.com. Flooring that has been cut or installed is not eligible for return or claim.
6. Eastern Flooring Products produces Shenandoah to imitate natural color and texture variation, but there are a finite number of unique pieces. Therefore, it is necessary to pay attention to avoid creating unintended patterns by installing identical pieces beside one another.
7. Avoid creating patterns with the end joints of the material. Stagger the first piece of each row in size to avoid the end joints of alternating rows from lining up. No pieces smaller than $\frac{1}{4}$ of the piece in length should be installed to maintain the structural integrity of the floor. End joints in adjacent rows should be a minimum of 12" from one another.
8. Shenandoah does not require acclimation unless exposed to temperatures outside of the installation range of 60-80° F in the 96 hours prior to the beginning of installation. Installation environments should be temperature controlled by an HVAC system to provide a constant temperature of 60-80° F prior for 24 hours prior to installation, during installation, and continuously after installation. The best practice is to acclimate the material for 24 or more hours prior to installation.
9. Install Shenandoah in indoor areas with a constantly maintained temperature between 55°F and 85°F. Eastern Flooring Products does not recommend this product in 3 season rooms.
10. It is important to protect Shenandoah from exposure to direct sunlight. Direct sunlight can result in thermal expansion, UV fading, and discoloration. Ideal protection will include UV treated windows and the use of drapes/blinds during peak sunlight hours.

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11. Install Shenandoah after all other trades have completed their work to avoid damaging or soiling the floor.
12. Dry fit all moldings prior to installing the floor to ensure proper color, fit, and finish.
13. Do not fasten anything through the floor such as cabinets, toilets, trim, or molding. Failure to maintain a floating installation may result in buckling or decoupling.
14. Expansion is required around all fixed obstructions such as walls, door jams, cabinets fastened to the floor, islands, or toilets.
 - a. Areas under 1,600 square feet use a $\frac{3}{8}$ " expansion gap.
 - b. Areas over 1,600 square feet use a $\frac{1}{2}$ " expansion gap.
 - c. For any installations containing a continuous run of flooring exceeding 65 lineal feet contact technical support at info@easternflooringproducts.com

GENERAL SUBFLOOR GUIDELINES

1. Before beginning installation, read all subfloor guidelines for the correct subfloor type. Proper subfloor preparation is the responsibility of the installer and one of the most important components of the durability of any floor.
2. Subfloor must be level, flat, clean, dry, and structurally sound. Subfloor flatness must be within $\frac{3}{16}$ " in 10' or $\frac{1}{8}$ " in 6' in all directions.
3. Subfloor must be free of any dust, solvent, wax, asphalt sealing compound, and other material that may compromise the backing of the flooring or inhibit the free floating of the floor after installation. Unevenness and obstructions may compromise the locking mechanism and cause it to disengage.
4. Any patching or leveling compound used to achieve a flat subfloor needs to meet subfloor alkalinity and moisture standards. Eastern Flooring Products recommends the use of a water resistant, non-shrinking, Portland leveling compound with a compressive strength of at least 3,000 psi.
5. Shenandoah is waterproof, but it is not a vapor barrier. Subfloor moisture can still cause mold, mildew, transfer of alkali salts, and other moisture-related issues, unrelated to Shenandoah. It is the responsibility of the installer to ensure the subfloor is not improperly emitting moisture prior to installation and retain records of such a process.
6. Acceptable subfloor types include:
 - a. Concrete slab meeting updated ASTM F710 guidelines
 - b. APA rated plywood underlayment meeting updated ASTM F1482 guidelines
 - c. Underlayment grade particleboard

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- d. Securely fastened hard surface floors including hardwood, ceramic tile, or one layer of non-cushion backed resilient sheet or tile. Must be clean, flat, free of deflection, and securely adhered or fastened.
 - e. Properly prepared gypsum cement with a dry density exceeding 90 pounds per cubic foot.
7. Unacceptable subfloor types include, but are not limited to:
- a. Crumb rubber underlayment, as it may interact with the flooring, chemically.
 - b. Existing floating floors or cushion back products of any kind. Soft layers of flooring under Shenandoah may compromise the locking integrity and resistance to indentation.
 - c. Ceramic tile with grout joints exceeding 1/4" in width. Grout joints exceeding 1/4" must be filled with an acceptable patching compound, previously described.
 - d. Carpet of any kind
 - e. Wood adhered to concrete, including sleeper construction subfloors
 - f. Unapproved underlayment with or without express designation as being acceptable for rigid core product installation. If an underlayment is not expressly mentioned in this installation guideline, you can request guidance from Eastern Flooring Products by emailing info@easternflooringproducts.com prior to installation.
 - i. Shenandoah already features a comfortable underlayment and further cushioning may compromise the integrity of the locking mechanism.

CONCRETE SUBFLOOR GUIDELINES

1. Concrete subfloors must meet the updated ASTM F710 guidelines, prior to installation.
2. Conduct moisture and pH testing prior to installing any floor to limit liability. Ensuring acceptable moisture levels and retaining test records for Shenandoah are the responsibility of the installer. Eastern Flooring Products is not liable for moisture-related claims that do not meet stated installation standards.
3. New and existing concrete floors on or below grade require the application of Eastern Flooring Products Assurance™ as a roll-on moisture vapor barrier prior to the installation of Shenandoah. Follow the guidelines provided on the Assurance™ technical data sheet from Eastern Flooring Products for additional instructions and guidelines prior to application.
4. Installation of Shenandoah without the use of Assurance™ will only be considered within the concrete subfloor guidelines if thorough moisture, relative humidity, and pH testing is conducted, records are retained, and a 6-mil poly barrier is present. A layer of underlayment with no cushioning properties and a perm rating of .1 or less may be used as a vapor barrier over

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concrete floors in these circumstances.

- a. Testing for poly barrier installation should comply with the following testing parameters:
 - i. ASTM 1869 Calcium Chloride – maximum result 8lbs
 - ii. ASTM 2170 Relative Humidity – maximum result 90% per 1000 sf per 24 hours
 - iii. Concrete pH should be no less than 7, but not exceed 10
 - b. Please note that installation of 6 mil poly barrier can present a hazard to installation professionals when multiple layers of the barrier are overlapped and walked upon. Eastern Flooring Products takes no responsibility for this risk and strongly recommends the use of Assurance roll on moisture vapor barrier.
5. Shenandoah is not a vapor barrier. Subfloor moisture can still cause mold, mildew, and other moisture-related issues, unrelated to Shenandoah. It is the responsibility of the installer to ensure the subfloor is not improperly emitting moisture prior to installation. An additional layer of underlayment with a perm rating of .1 or less may be used as a vapor barrier over concrete floors if it has no cushioning properties.
6. All concrete floors must be dry, clean, smooth and structurally sound. They shall be free of any foreign materials that might prevent proper absorption, including, but not limited to dust, dirt, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, incompatible sealers, fire-retardant chemicals, fungicides, release agents, alkaline salts, excessive carbonation, laitance, mold, mildew, and curing, sealing, hardening or parting compounds, or unapproved admixtures.
7. Eastern Flooring Products Assurance™ can also be used as an encapsulator for concrete floors with well-bonded cutback adhesive, or well-bonded residue from multipurpose, latex, or pressure sensitive adhesives. Follow all related instructions related to that product during installation. When used as an encapsulator, two coats will be required.
- a. If cut-back adhesive residue is present, but not well bonded it must be removed by safe methods such as mechanical removal or wet scraping. Contact a professional to remove these adhesives as breathing crystalline silica or asbestos fibers can cause cancer and is a severe respiratory hazard. Refer to the Resilient Floor Covering Institute's guide "Recommended Work Practices for Removal of Resilient Floor Coverings" for more information on safe removal of resilient flooring.
8. Shenandoah is not a vapor barrier. Subfloor moisture can still cause mold, mildew, and other moisture-related issues, unrelated to Shenandoah. It is the responsibility of the installer to ensure any subfloor is not improperly emitting moisture prior to installation.

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WOOD SUBFLOOR GUIDELINES

1. Wooden subfloors must be structurally sound, installed to their manufacturer's guidelines, and meet the updated ASTM F1482 guidelines, prior to installation.
2. Be certain the floor joists do not impede the floor flatness as required. Floors must be sufficiently rigid to avoid deflection that exceeds the subfloor flatness standards under any use. An additional layer of well-attached APA rated 1/4" thick underlayment may be used to aid rigidity where unacceptable conditions exist.
3. Crawl spaces and basements must be dry. The bottom of wooden subfloor joists must be a minimum of 18" above ground surface. 6 mil or greater black polyethylene sheeting must be in place covering 100%.
4. Plastic sheeting is not recommended over wooden subfloors.

RADIANT HEAT GUIDELINES

1. Embedded radiant heating elements are acceptable in the subfloor provided they are a minimum of 1/2" from Shenandoah in final installation.
2. Material covering embedded radiant heating elements should still meet subfloor standards. .
3. To install Shenandoah over radiant heating systems, the system should be running and operational for at least 2 weeks prior to installation. 72 hours before installation, system temperature should be reduced to 65°F or cooler. After installation, increase temperature in increments of 5°F per 24 hours period to avoid overheating. Once installed, the floor temperature should never exceed 85°F. Temperature should be measured by an in-floor temperature sensor.

INSTALLATION INSTRUCTIONS

Required Tools

1. Appropriately sized spacers, depending on the installation dimensions
2. Tape measure
3. Cutter
4. Rubber mallet

Installation Notes

1. Before beginning installation, ensure all appropriate general and subfloor guidelines are met. Inspect the material to ensure it is correct and undamaged.

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- a. While it is not the recommendation of Eastern Flooring Products, if poly film is used for installation, install the first row of poly film before installing the material. Run the poly film up the walls prior to installation and trim after installation is completely finished, being sure not to impede the expansion space of the product. Do not install more than one of poly film at a time to avoid slip hazard. Seams must be taped with a minimum 4" overlap. Take great caution when walking on poly film to avoid injury. Ensure poly film is smooth and flat before laying flooring pieces over it.
2. Always start installation in the left corner of the room. When installing, the tongue side of the pieces should face your starting wall.
3. Ensure your starting piece is no less than one third the size of your total piece.
4. Should you need to disassemble two pieces on the long side, you can lift to the same angle used when assembling the pieces. Failure to disassemble correctly can damage the pieces. Do not reassemble damaged pieces as this can impede the structural integrity of the flooring installation.
5. Should you need to disassemble two pieces on the short side, you must slide the pieces apart, keeping them both flat to the floor. Failure to disassemble correctly can damage the pieces. Do not reassemble damaged pieces as this can impede the structural integrity of the flooring installation.
6. Use the appropriate amount of expansion space based on the installation dimensions for all fixed obstructions. Under cut door jambs where necessary to provide the same amount of expansion as along walls. Do not undercut metal door jambs without checking local building codes.
7. It is the responsibility of the installer to ensure that all subfloor requirements are met. Refer to the subfloor requirements section of the installation instructions before proceeding.

Installation Steps

1. Working from multiple cartons, dry lay several rows of material to ensure desired aesthetic. Immediately after dry laying Shenandoah dry fit all trim, transitions, and stair accessories to ensure acceptable fit and finish for the entire job.
2. Measure the room to ensure that the last row will not be smaller than $\frac{1}{2}$ the width of the product, nor the last piece of a row smaller than $\frac{1}{4}$ the length of the product. If so, rip the first row to accommodate the last row and/or cut the first piece to accommodate the last.
3. It is very important that the first row is installed straightly, while accommodating proper expansion space. To realize this, installation alternates back and forth between rows one and two, for the first two rows only. Start with a small, cut piece and position this piece close to the wall.
4. Now use a full-size piece. Angle the long side of piece 2 on to the long side of piece 1. Drop

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piece 2 to lock. Make sure there are no gaps. If gaps are present, use firm manual pressure to pull the plank towards the grove side of the previous row. Do not use a tapping block.

5. Take another full-size piece. Repeating the previous step, insert the long side of piece 3 into the long side of piece 2. Then slide piece 3 to your left until the short side is in contact with the short side of piece 1.
6. Drop the short side of piece 3 onto the short side of piece 1.
7. Using firm, manual pressure or a rubber mallet, lightly tap the joints on the short side to secure. This ensures the 3x locking. Using excessive force while tapping may result in post-installation disengagement.
8. Finish rows 1 and 2 by continuing to alternate pieces on rows 1 and 2 to avoid misalignment. From row 3 onward, installation does not require alternating rows. Install one row after another by starting with angling the long side, sliding until the short sides are in contact then locking the short side.
9. As you go, don't forget to use firm, manual pressure or a rubber mallet on the short sides to secure the end joints. Pieces that are correctly engaged on the short side will not lift from one another and must be disassembled with the horizontal sliding motion described in Installation Note 4.

MOLDING INSTALLATION

1. When you have finished installing Shenandoah, remove perimeter spacers, and ensure you have maintained the required expansion space in all instances. Protect all edges with non-pinning base boards, transition strips, quarter round, or shoe mold.
2. Eastern Flooring Products® recommends using stair caps on stairs when possible. Matching stair caps and risers can be purchased from your source for Shenandoah.
3. All moldings and trim should be thoroughly inspected and dry fit prior to the installation of Shenandoah to ensure proper fit, finish, and match.
4. Do not install transition strips to the pieces of flooring, except when instructed to do so in stairnose installation instructions. Do not nail, staple, or screw moldings through the floor into the subfloor. Do not pinch the floor with transitions or perimeter molding, such as baseboards or quarter round.

AFTER INSTALLATION

1. All vinyl floors can be scratched in abusive situations. To avoid scratching your floor:
 - a. All furniture must be equipped with felt pads to avoid scratching the floor. Heavy furniture and appliances must be equipped with non-staining large surface floor protectors. Furniture with wheeled castors should only have 2" or wider castors no less than 4" in diameter.

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- b. Regularly sweep or vacuum floors to keep your floor free of debris, debris can become trapped in shoes, castors, or other acceptable contacts with floor and create scratches. Do not use vacuums with beater bar attachments on. .
 - c. Keep pets' nails trimmed.
 - d. Avoid sliding things across the floor that could have rough edges or trap debris.
 - e. Avoid high heeled shoes as they create very high pressure which may indent floors.
2. Eastern Flooring Products doesn't recommend any heavy rolling traffic on floating floors. Office areas must have a protective mat under chairs and be equipped with non-marking roller blade style wheels. Do not use ball-type castors.
3. Floating floors must not be pinned with fixed cabinetry, heavy equipment, or other heavy items. This includes kitchen cabinets/islands, slate pool tables, safes, or other heavy objects that would keep the floor from floating freely. If you have a question about a given piece of furniture or otherwise heavy object, please contact Eastern Flooring Products at info@easternflooringproducts.com for support.
4. Furniture should be moved onto the newly installed floor using an appliance hand truck over hardboard runways.
5. Oil or petroleum-based products can result in surface staining. Do not track asphalt driveway sealer or other oil-based products on the floor.
6. Use walk-off mats at entrances to prevent dirt, grit, and staining substances from damaging the floor. Use mats with non-staining backs, as rubber may discolor the floor.
7. Keep an appropriate amount of attic stock of your material to allow for repairs of the floor should you damage it or an environmental issue arise.
8. Eastern Flooring Products does not recommend the use of steam cleaning devices of any sort, abrasive cleaners, harsh chemicals, detergents, or "mop and shine" products. If you have a question about care and maintenance, consult the Shenandoah Care and Maintenance Guide.



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REPORTING A PROBLEM

1. If you think there is something wrong with your floor that is covered by this warranty, immediately contact the company you purchased the floor from within 48 hours of noticing the problem. Subsequent damage to the floor is not covered by the warranty.
2. Do not walk or roll anything over the affected area of the floor until the problem is identified and resolved.
3. If the company you purchased the product from determines there is a warranted issue with the floor, they will contact Eastern Flooring Products to file a claim. Only the original purchasing party can file a claim or inquire as to the status of that claim.
4. Eastern Flooring Products has the unimpeachable right to decline a claim if not given the opportunity to inspect the floor in a timely manner. Floors that have been repaired, replaced, or permanently covered without manufacturer inspection will not be eligible to file a claim.

WARNING: Existing resilient floor coverings and black asphalt adhesive may contain asbestos. Improper removal procedures could release asbestos fibers into the air. Asbestos fibers, when inhaled, could cause serious bodily harm. Do not sand or dry scrape these materials. If removal of existing floor coverings is necessary, be certain that all precautions are taken and proper procedures are followed. For information regarding proper removal procedures in the U.S.A., please consult the Resilient Floor Covering Institute (966 Hungerford Drive, Suite 12-B, Rockville, MD 20850) for a pamphlet, "Recommended Work Practices for the Removal of Resilient Floor Coverings."